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54. (New) The semiconductor processing apparatus according to Claim 53, wherein said tungsten halogen lamp generates a normal peak operating voltage of about 208 VAC.

55. (New) The semiconductor processing apparatus according to Claim 53, wherein said high energy voltage comprises a voltage of about 480 VAC.

56. (New) The semiconductor processing apparatus according to Claim 51, wherein said lamp applies said high energy voltage as a pulse of high energy voltage.

57. (New) The semiconductor processing apparatus according to Claim 56, wherein said pulse of high energy voltage has a pulse duration in a range of about 100 milliseconds to 400 milliseconds.

a 58. (New) The semiconductor processing apparatus according to Claim 4, wherein said second energy source comprises at least one lamp having a normal operating condition generating a normal output spectrum and a normal peak operating voltage, said lamp adapted to apply a pulse of high energy voltage to the device side, said pulse of high energy voltage exceeding said normal peak operating voltage and having a duration in a range of about 100 milliseconds to 400 milliseconds.

59. (New) The semiconductor processing apparatus according to Claim 58, wherein said lamp generates a shifted output energy spectrum when applying said pulse of high energy voltage whereby said lamp generates a peak energy voltage at a shorter wavelength than said normal peak operating voltage.

60. (New) The semiconductor processing apparatus according to Claim 58, wherein said lamp generates a shifted output energy spectrum over a range of about 0.2 microns to 0.9 microns.

61. (New) A semiconductor processing apparatus comprising:  
a processing chamber adapted to support a semiconductor substrate therein;

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a first energy source adapted for applying a first energy to a non-device side of the semiconductor substrate to heat the non-device side of the substrate to a reference temperature; and

a second energy source adapted for applying a second energy to a device side of the semiconductor substrate to heat the device side to a heat activation temperature, said second energy source applying said second energy for an activation period sufficient to activate impurities in the substrate so that they become part of the lattice structure of the substrate while minimizing diffusion of the impurities across the substrate, and said reference temperature being less than said heat activation temperature to reduce the temperature gradient in the substrate to minimize stress in the substrate.

62. (New) The semiconductor processing apparatus according to Claim 61, wherein said second energy source is adapted to heat the device side of the substrate to a depth in a range of about 1 to 5 micrometers to control the depth of the junctions formed by impurities implanted in the semiconductor substrate.

63. (New) The semiconductor processing apparatus according to Claim 62, wherein second energy source is adapted to apply said second energy over a duration in a range of about 1 microsecond to 2 seconds.

64. (New) The semiconductor processing apparatus according to Claim 63, wherein said duration is in a range of about 100 milliseconds to 400 milliseconds.

65. (New) The semiconductor processing apparatus according to Claim 61, wherein said first energy source generates a peak energy at a wavelength in a range of about 0.2 microns to 3.0 microns.

66. (New) The semiconductor processing apparatus according to Claim 65, wherein said second energy source generates a peak energy at a wavelength in a range of about 0.2 microns to 0.9 microns.

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67. (New) The semiconductor processing apparatus according to Claim 61, wherein said first energy source comprises at least one tungsten halogen lamp.

68. (New) The semiconductor processing apparatus according to Claim 67, wherein said first energy source comprises a plurality of tungsten halogen lamps.

69. (New) The semiconductor processing apparatus according to Claim 61, wherein said second energy source comprises at least one lamp chosen from a tungsten halogen lamp and a xenon lamp.

70. (New) The semiconductor processing apparatus according to Claim 69, wherein said second energy source comprises at least one lamp tungsten halogen lamp.

71. (New) The semiconductor processing apparatus according to Claim 70, wherein said second energy source comprises a plurality of tungsten halogen lamps.

72. (New) The semiconductor processing apparatus according to Claim 70, wherein said lamp has a normal operating condition generating a normal energy spectrum and a normal peak voltage, said lamp being adapted to apply a high energy voltage to the device side, and said high energy voltage being greater than said normal peak voltage.

73. (New) The semiconductor processing apparatus according to Claim 72, wherein said lamp generates a shifted energy spectrum when applying said high energy voltage, said shift energy spectrum shifts to a lower wavelength range than said normal energy spectrum.

74. (New) The semiconductor processing apparatus according to Claim 72, wherein said high energy voltage is about 480 VAC, and said normal peak voltage is about 208 VAC.

75. (New) The semiconductor processing apparatus according to Claim 61, further comprising a filter, said filter absorbing energy from said second energy source having a wavelength greater than about 0.9 microns.